



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

4.5NR-7

Job Sheet 194550



Part No: 4.5NR-7

Job Qty: 20 pcs

Part Name: Lifter Bushing



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 5/3/19

Job Tracking No:

Due Date: 5/17/19

Created By: Jennifer Renwick

Type: SOLD

Description:

Note: DWG 4.5NR-7 Rev 1A IPP Rev. A 19.05.02 New issue DP Verify DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier	Sign-off
					Setup Hrs	Run Hrs		
90	Bandsaw - 1	20 pcs	5/17/19	5/17/19	0.00	0.80	Bandsaw - 1	5/19/05/03
100	Outsource - 1 - Heat Treat	20 pcs	5/17/19	5/17/19			ME1001-VC ATL002	2019-05-08
110	Packaging 2-1 - Receive - B4B	20 pcs	5/17/19	5/17/19	0.00	0.00	Packaging 2 - 1 - B4B	
							Packaging 2 - 2 - B4B	
							Packaging 2 - 3 - B4B	
							Packaging 2 - 5 - B4B	
							Packaging 2 - 4 - B4B	
							Packaging 2 - 6 - B4B	
							Packaging 2 - 7 - B4B	
							Packaging 2 - 8 - B4B	
							Packaging 2 - 9 - B4B	
							Packaging 2 - 10 - B4B	
							Packaging 2 - 11 - B4B	
							Packaging 2 - 12 - B4B	
							Packaging 2 - 13 - B4B	
							Packaging 2 - 14 - B4B	
							Packaging 2 - 15 - B4B	
							Packaging 2 - 16 - B4B	
							Packaging 2 - 17 - B4B	
							Packaging 2 - 18 - B4B	
							Packaging 2 - 19 - B4B	
							Packaging 2 - 20 - B4B	
							Packaging 2 - 21 - B4B	
							Packaging 2 - 22 - B4B	
							Packaging 2 - 23 - B4B	
							Packaging 2 - 24 - B4B	
							Packaging 2 - 25 - B4B	
							Packaging 2 - 26 - B4B	
							Packaging 2 - 27 - B4B	
							Packaging 2 - 28 - B4B	
							Packaging 2 - 29 - B4B	
							Packaging 2 - 30 - B4B	
							Packaging 2 - 31 - B4B	
							Packaging 2 - 32 - B4B	
							Packaging 2 - 33 - B4B	
							Packaging 2 - 34 - B4B	
							Packaging 2 - 35 - B4B	
							Packaging 2 - 36 - B4B	
120	QC 6	20 pcs	5/17/19	5/17/19	0.00	0.00	QC 6 - 9	
							QC 6 - 68	
							QC 6 - 61	
							QC 6 - 40	

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SCRAP



Container No: S177989



Part: 4.5NR-7

Job No: 194550

Serial No/Batch: S177989

Revision: 1A

Inspector:

Exp Date:

Instructions:

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL.: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Date: 05/03/19

130	SL-154 - B4B	20 pcs	5/17/19	0.00 5.00	SL-154 - 1 - B4B	
140	QC 2	20 pcs	5/17/19	0.00 0.00	QC 2 - 1	
					QC 2 - 12	
					QC 2 - 14	
					QC 2 - 17	
					QC 2 - 19	
					QC 2 - 2	
					QC 2 - 20	
					QC 2 - 22	
					QC 2 - 23	
					QC 2 - 25	
					QC 2 - 32	
					QC 2 - 33	
					QC 2 - 35	
					QC 2 - 39	
					QC 2 - 4	
					QC 2 - 40	
					QC 2 - 44	
					QC 2 - 45	
					QC 2 - 48	
					QC 2 - 49	
					QC 2 - 50	
					QC 2 - 51	
					QC 2 - 52	
					QC 2 - 57	
					QC 2 - 62	
					QC 2 - 63	
					QC 2 - 8	
					QC 2 - 66	
					QC 2 - 64	
					QC 2 - 65	
					QC 2 - 5	
					QC 2 - 71	
150	QC 8	20 pcs	5/17/19	0.00 0.00	QC 8 - 12	
					QC 8 - 14	
					QC 8 - 17	
					QC 8 - 20	
					QC 8 - 25	
					QC 8 - 3	
					QC 8 - 32	
					QC 8 - 33	
					QC 8 - 35	
					QC 8 - 39	
					QC 8 - 4	
					QC 8 - 44	
					QC 8 - 45	
					QC 8 - 49	
					QC 8 - 58	
					QC 8 - 8	
					QC 8 - 9	
					QC 8 - 68	
					QC 8 - 67	
					QC 8 - 1 (A)	
					QC 8 - 47	
					QC 8 - 40	
					QC 8 - 52	
					QC 8 - 23	
160	Outsource - 15 - Nickel Plate	20 pcs	5/17/19		GRO002-VC	
170	Packaging 2-1 - Receive - B4B	20 pcs	5/17/19	0.00 0.00	Packaging 2 - 1 - B4B	
					Packaging 2 - 2 - B4B	
					Packaging 2 - 3 - B4B	
					Packaging 2 - 5 - B4B	
					Packaging 2 - 4 - B4B	
					Packaging 2 - 6 - B4B	
					Packaging 2 - 7 - B4B	
					Packaging 2 - 8 - B4B	
					Packaging 2 - 9 - B4B	
					Packaging 2 - 10 - B4B	
					Packaging 2 - 11 - B4B	
					Packaging 2 - 12 - B4B	

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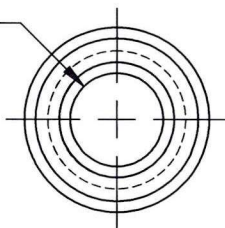
				Packaging 2 - 13 - B4B	
				Packaging 2 - 14 - B4B	
				Packaging 2 - 15 - B4B	
				Packaging 2 - 16 - B4B	
				Packaging 2 - 17 - B4B	
				Packaging 2 - 18 - B4B	
				Packaging 2 - 19 - B4B	
				Packaging 2 - 20 - B4B	
				Packaging 2 - 21 - B4B	
				Packaging 2 - 22 - B4B	
				Packaging 2 - 23 - B4B	
				Packaging 2 - 24 - B4B	
				Packaging 2 - 25 - B4B	
				Packaging 2 - 26 - B4B	
180	QC 6	20 pcs	5/17/19	0.00 0.00	QC 6 - 9
					QC 6 - 68
					QC 6 - 61
					QC 6 - 40
190	Packaging 3-1 - Stock - B4B	20 pcs	5/17/19	0.00 0.00	Packaging 3 - 1 - B4B
					Packaging 3 - 2 - B4B
					Packaging 3 - 3 - B4B
					Packaging 3 - 4 - B4B
					Packaging 3 - 5 - B4B
					Packaging 3 - 6 - B4B
					Packaging 3 - 7 - B4B
					Packaging 3 - 8 - B4B
					Packaging 3 - 9 - B4B
					Packaging 3 - 10 - B4B
					Packaging 3 - 11 - B4B
					Packaging 3 - 12 - B4B
					Packaging 3 - 13 - B4B
					Packaging 3 - 14 - B4B
					Packaging 3 - 15 - B4B
					Packaging 3 - 16 - B4B
					Packaging 3 - 17 - B4B
					Packaging 3 - 18 - B4B
					Packaging 3 - 19 - B4B
					Packaging 3 - 20 - B4B
					Packaging 3 - 21 - B4B
					Packaging 3 - 22 - B4B
					Packaging 3 - 23 - B4B
					Packaging 3 - 24 - B4B
					Packaging 3 - 25 - B4B
					Packaging 3 - 26 - B4B
200	QC 21 - SA	20 pcs	5/17/19	0.00 0.00	QC 21 - SA - 21
					QC 21 - SA - 70
					QC 21 - SA - 53
Part Op 90 - Cut bar at 36.0". ***NOTE one bar makes 36 parts*** Descriptions: 100 - 1-Issue P/O; _____ RC 40-44 2-Bead blast 3--Material type; 4140 4- Certificate of Conformity is required 130 - 1-Machine as per folio FC 774 FOLIO REV: _____ DWG REV: _____ 2-Debur 160 - 1-Issue P/O; _____ -Nickel plate, QQ-N-290, Class 2, Grade E or F -Nickel Plate .0004- .0006 -Bake after plating -Material type; 4140 -Certificate of Conformity is required 170 - Certificate of Conformity is required					
Job BOM					
Part / Item	Component Name	Quantity	Operation	Container	
MT-4140QT-R0.625	AISI 4140 Quenched &Tempered Steel Round Bar 0.625" Dia.	60 ft (3 ea)	90-Bandsaw - 1	5042214	
Job Allocations					
Operation	Component Part	Required	Inventory	Allocated	
90-Bandsaw - 1	MT-4140QT-R0.625	60	12	0	
Part Specifications					
Specifications could not be found.					

Plex 5/3/19 2:06 PM Dart.Renwick.Jennifer

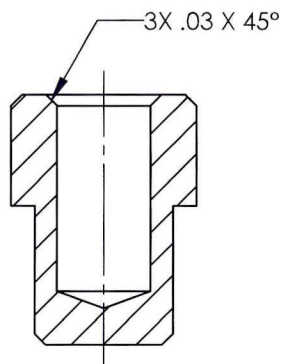
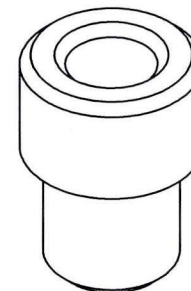
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REVISIONS				
REV	ECR	DESCRIPTION	DATE	INITIAL
1		ADDED TOLERANCES	7/22/2013	JAG
1A	14-0095	CH'D TITLE BLOCK WAS RED BARN IS DART. ADDED NOTE 2.	7/28/2014	DPD
				RW

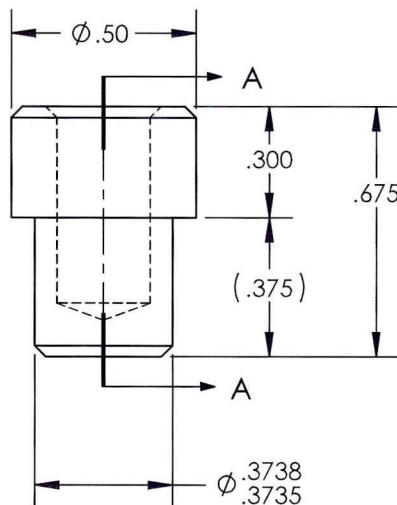
$\phi .252^{+.005}_{-.000} \nabla .53$



BAR STOCK IS
Ø0.625



SECTION A-A



NOTES:

1. NICKEL PLATE .0004 - .0006, BAKE AFTER PLATING.
2. BAG & LABEL WITH BATCH NUMBER.

DART AEROSPACE	
TITLE LIFTER BUSHING	
DWG NO. 4.5NR-7	REV 1A
MAT'L 4140	DRAWN BY:
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	APPROVED <i>D. Weil</i>
.XXX ± .005 FRACTIONS ± 1/32	HEAT TREAT HRC 40-44
.XX ± .01 ANGLES ± 5°	FINISH SEE NOTE 1
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R	SPEC
2. DIMENSIONAL LIMITS APPLY AFTER PLATING	USED ON MODEL
SCALE 2:1	DATE
SHEET 1 OF 1	

ASSY QTY	ASSY QTY	B/O	Part #	UNIT QTY	Description	Material	B/O INFORMATION OR SPECIFICATIONS
			4.5NR-7	1	LIFTER BUSHING	4140	Ø1/2 X 3/4



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **POHB043406**



Supplier: ATL002-VC
Atlantic Heat Treat 2001
401 Frankcom
Ajax
ON
L1S 1R4 Canada
Phone: 866 257 6395

Attention: Ananth, Nimmy

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

PO No: POHB043406

PO Date: 5/8/19

Due Date: 5/14/19

Purchase Order

Revision:

Revision Date:

Ship-To Contact: Phone:

Pynt Terms: Net 30

Freight Terms:

Special Comments:

Items

Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	194550	4.5NR-7	Lifter Bushing 1-Issue P/O; RC 40-44 2-Bead blast 3-Material type; 4140 4- Certificate of Conformity is required <i>1PCS = 36 X</i>	Firmed	-	5/14/19	36 pcs	0 pcs	36 pcs	\$2.0833/pcs	\$75.00
2	193435	C45-12-4	Lock Roller Outsource process - Heat Treat) 1--Issue P/O to Atlantic; P/O RC 53-56 2-Bead blast 3- Certificate of Conformity is required 4. Material MT-4140QT- R1.000 AISI 4140 Quenched & Tempered Steel Round Bar 1.000" dia	Firmed	-	5/14/19	50 pcs	0 pcs	50 pcs	\$1.50/pcs	\$75.00
3	191803	C45-4-4	Load Beam (Outsource process - Heat Treat) 1--Issue P/O to Atlantic Heat Treat; P/O RC 53-56 2-Bead blast 3- Certificate of Conformity is required 4. Material MT-4140-S- 1.250X11.000 AISI 4140 Steel Sheet/Plate	Firmed	-	5/14/19	7 pcs	0 pcs	7 pcs	\$24.2857/pcs	\$170.00



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PURCHASE ORDER

POHB043406



Items											
Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
Grand Total:											\$320.00

Order Notes

Procurement Quality Clauses
A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 5/14/19 1:11 PM Dart.Guerin.Kimberley

Shipping Ticket

Sold To: 1448
DART AEROSPACE LTD.
1270 ABERDEEN ST

HAWKESBURY ON K6A 1K7

Ship To: 163145
DART AEROSPACE LTD.
1270 ABERDEEN ST

HAWKESBURY ON K6A 1K7

Page 1 of 1

Purchase Order Number	Packing List No	Customer Job No	Route	Carrier
POHB043406				

Quantity	Part No. / Part Name / Part Description	Pounds
1	PC MATERIAL 4140 SANDBLAST AND HEAT TREAT TO 40-44RC C OF C, SPRT# 4.5NR-7, JOB# 194550	36 inches

Container Type	# Of Containers	Cust Cont Id	Container Type	# Of Containers	Cust Cont Id
BOX	1				

NOTICE: OUR LIABILITY IS LIMITED TO OUR INVOICE CHARGES ONLY

Shipped Complete

Quantity Shipped:

1

Pounds Shipped:

3.00

RECEIVED

MAY 15 2019

DART AEROSPACE LTD.

41RC
5-14-19

Order No.: 166210

Shipped Complete

Quantity Shipped:

1.00

Received By:

Date:

Pounds Shipped:

3.00

Sold To: DART AEROSPACE LTD.

Shipped ON: 05/13/2019

Certification

Date: 05/14/2019

Entry Date: 05/13/2019

Page: 1 of 1

To:DART AEROSPACE LTD.
1270 ABERDEEN ST

Purchase Order No.: POHB043406

Packing List No.:

HAWKESBURY ON K6A 1K7

Material: 4140

We are pleased to provide you with the following Certificate of Compliance.

Quantity	Part Number / Part Name / Part Description	Pounds
✓ 1	1 PC MATERIAL 4140 1 PCS = 36 inches SANDBLAST AND HEAT TREAT TO 40-44RC C OF C, SPRT# 4.5NR-7, JOB# 194550 ✓	3

Insp. Type	Scale	Minimum	Maximum	Number	Other
------------	-------	---------	---------	--------	-------

Customer Requirements:

Harden rockwell

Results:

Harden ROCKWE 40. 44. 41. TESTED AS PER SAMPLING PLAN
HEAT TREATED TO 41 RC AS PER CUSTOMER REQUEST

STATEMENT OF LIMITED LIABILITY (PLEASE READ CAREFULLY). ALL WORK IS ACCEPTED SUBJECT TO THE FOLLOWING CONDITIONS: It is recognized that even after employing all the scientific methods known to us, hazards still remain in metal treating. THEREFORE, OUR LIABILITY SHALL NOT EXCEED TWICE THE AMOUNT OF OUR CHARGES FOR THE WORK DONE ON ANY MATERIAL (FIRST TO REIMBURSE FOR THE CHARGES AND SECOND TO COMPENSATE IN THE AMOUNT OF THE CHARGES), EXCEPT BY WRITTEN AGREEMENT SIGNED BY THE METAL TREATER. THE CUSTOMER, BY CONTRACTING FOR METAL TREATMENT, AGREES TO ACCEPT THE LIMITS OF LIABILITY AS EXPRESSED IN THIS STATEMENT TO THE EXCLUSION OF ANY AND ALL PROVISIONS AS TO LIABILITY ON THE CUSTOMER'S OWN INVOICES, PURCHASE ORDERS OR OTHER DOCUMENTS. IF THE CUSTOMER DESIRES HIS OWN PROVISIONS AS TO LIABILITY TO REMAIN IN FORCE AND EFFECT, THIS MUST BE AGREED TO IN WRITING, SIGNED BY AN OFFICER OF THE TREATER. IN SUCH EVENT, A DIFFERENT CHARGE FOR OUR SERVICES REFLECTING THE HIGHER RISK TO TREATER, SHALL BE DETERMINED BY THE TREATER AND CUSTOMER. THE TREATER MAKES NO EXPRESS OR IMPLIED WARRANTIES AND SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF THE FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, AS TO THE PERFORMANCE OF CAPABILITIES OF THE MATERIAL AS HEAT TREATED, OR THE HEAT TREATMENT. THE FOREMENTIONED LIMITATION OF LIABILITY STATED ABOVE IS SPECIFICALLY IN LIEU OF ANY EXPRESS OR IMPLIED WARRANTY, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS, AND OF ANY OTHER SUCH OBLIGATION ON THE PART OF THE TREATER. No claim for shortage in weight or count will be entertained unless presented within five (5) working days after receipt of materials by customer. No claim will be allowed for shrinkage, expansion, deformity, or rupture of material in treating or straightening, except by prior written agreement, as above, nor in any case for rupture caused by or occurring during subsequent grinding. Whenever we are given material with detailed instructions as to treatment, our responsibility shall end with the carrying out of those instructions. Failure by a customer to indicate plainly and correctly the kind of material (i.e., proper alloy designation) to be treated, shall cause an extra charge to be made to cover any additional expense incurred as a result thereof, but shall not change the limitation of liability stated above. Customer agrees there will be no liability on the treater in contract for any special, indirect or consequential damages arising whatsoever, including but not limited to personal injury, property damage, loss of profits, loss of production, recall or any other losses, expenses or liabilities allegedly occasioned by the work performed on the part of the treater. It shall be the duty of the customer to inspect the merchandise immediately upon its return, and in any event claims must be reported prior to the time that any further processing, assembling or any other work undertaken. OUR LIABILITY TO OUR CUSTOMERS SHALL CEASE ONCE ANY FURTHER PROCESSING, ASSEMBLING OR ANY OTHER WORK HAS BEEN UNDERTAKEN ON SAID MATERIAL. No agent or representative is authorized to alter the above conditions, except by writing duly signed by an officer of treater.


KEAN SHEPHERD
QUALITY CONTROL
ATLANTIC HEAT TREATING 2001 LTD

Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: _____ Part No. <u>4.5NR-7</u> <u>REV 1A</u>		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐		DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐					
Date : <u>2019-05-14</u>		Sequence #:		QTY Affected :			MRB (QSI042) 		
Description Work Order Deviation				Disposition				Completed By	
<u>MATERIAL 4140, NICKEL PLATED, 40-44 Rc</u> <u>CAN BE REPLACE BY</u> <u>17-4 H900, NO FINISH, NO HEAT TREAT</u> <u>NEEDED</u>				<u>- THIS DEVIATION IS ACCEPTABLE</u> <u>TO USE AS IS.</u> <u>- FIT, FORM AND FUNCTION WILL</u> <u>BE AS ORIGINALLY INTENDED</u>					
Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Presservation ☐ Material ☒ Product Improvement ☐ Process Improvement ☐ Human Factors ☐		FAULT CATEGORY ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread							
Other/Details:									